Maybe You Should Use Knitr

Ryan Giordano `rgiordan@mit.edu`

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Abstract

This is an abstract.

1 Introduction

Reams and reams of non-knitr TeX go here. The interesting stuff in is in Sections 2 and 3, which are generated by knitr.

2 Experiment One

In between the knitr chunks, this is just an ordinary LaTeX document. The content inside the code chunks gets run in R. By default, the code runs silently. If you add the option `results="asis"` then the output gets inserted verbatim into the tex document. This can be used to make tables or define macros.

$1 + 10 = 11$

$x = 6.000000$

Figure insertion uses a special set of semantics — see below for examples.

I use the `define_macros.R` script to specify macros defined from the `Rdata` file. Examples follow. For this experiment, we generated $1,000$ observations. They looked like a mess, as you can see in Figure 1.

And Figure 2 as well. What garbage.

3 Experiment Two

We generated $1,000$ observations again, but now we used an offset $\beta = 5$. They looked better, but we already showed you how to make a graph, so instead we'll show it in Table 1.

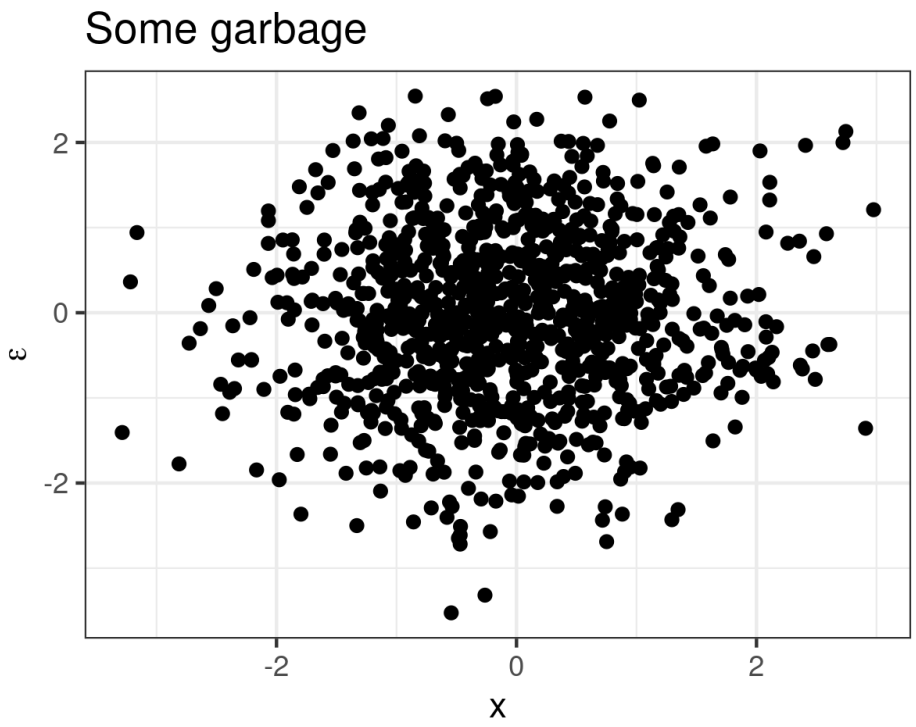

Figure 1: It's nice to have a long figure caption that allows easy access to latex stuff like there were $1,000$ draws of x and ϵ that went into this plot.

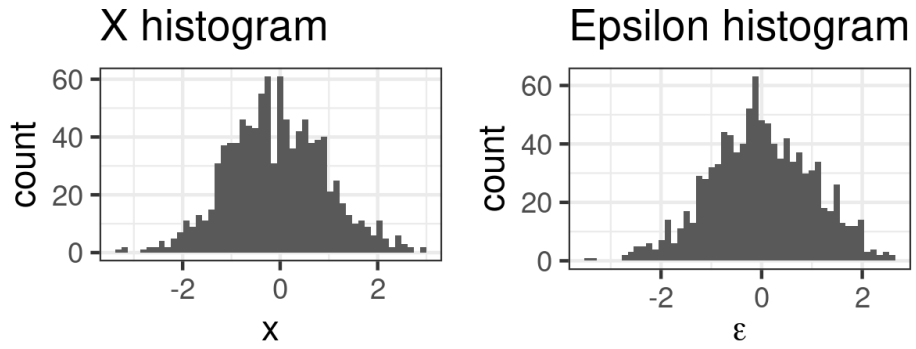

Figure 2: You can reuse this variable for other captions.

metric	x	y
mean	-0.0751	-0.3913
sd	1.0112	5.2012
max	2.9757	16.0883

Table 1: Amazing summary stats

4 Exercises

Some exercises:

- What happens if you use `print` instead of `cat` in the `r_example2` chunk of Section 2?
- What happens if refer to the undefined variable `y` instead of `x` in the `r_example2` chunk of Section 2? How does the error appear?
- What do you seen when you set `knitr_debug <- TRUE` in the `setup` chunk of Section 2?
- Suppose nothing works and you think the `data_path` variable is messed up. How can you print the value of `data_path` in the LaTeX pdf to debug it?
- Add a new TeX macro so you can refer to the standard deviation of x in the text. (Edit the `define_macros.R` file.)
- What do you seen when you set `knitr_cache <- TRUE` in the `setup` chunk of Section 2? (Try knitting before and after removing the `figure` directory.)
- Add a column for ϵ and a row for the median to Table 1.
- Add vertical lines to Table 1.
- Replace the text "Epsilon" with the Greek character in the title of the second ggplot of Figure 2. (Hint: look at the x-axis of Figure 1.)
- Change the printed height and width of the figures by passing arguments to `SetImageSize()`.
- Make the figure lines thicker and text larger by changing the `base_figure_width` variable in `initialize.R`.

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- Make two plots side by side that share a common legend using the `GetLegend()` command. The layout should be a horizontal row containing first figure 1, then figure 2, then the shared legend.
- Figure 2 uses `GridExtra::grid_arrange` to make side-by-side images. Can you do the same thing with float environments and two separate images?